

D:CHRISTOPHER P. HARRIS COMPANY: TAROLLI, SUNDHEIM, COVELL &amp; TUMMINO LLP



## UNITED STATES PATENT AND TRADEMARK OFFICE

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To: Name: CHRISTOPHER P. HARRIS  
Company: TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP  
Fax Number: 12166214072  
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From: Name: ASSIGNMENT SERVICES BRANCH  
Voice Phone: 571-272-3350

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#### Fax Notes:

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5	Document 1, Batch 2211480

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D:CHRISTOPHER P. HARRIS COMPANY: TAROLLI, SUNDHEIM, COVELL &amp; TUMMINO LLP

**UNITED STATES PATENT AND TRADEMARK OFFICE**UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND  
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

OCTOBER 18, 2010

\*700448267A\*

PTAS

CHRISTOPHER P. HARRIS  
TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP  
1300 EAST NINTH STREET, SUITE 1700  
CLEVELAND, OH 44114

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT SERVICES BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 10/15/2010

REEL/FRAME: 025137/0960

NUMBER OF PAGES: 7

BRIEF: MERGER (SEE DOCUMENT FOR DETAILS).

## ASSIGNOR:

NORTHROP GRUMMAN SPACE & MISSION  
SYSTEMS CORP.

DOC DATE: 12/11/2009

## ASSIGNEE:

NORTHROP GRUMMAN SYSTEMS  
CORPORATION  
1840 CENTURY PARK EAST  
LOS ANGELES, CALIFORNIA  
USA  
90067-2199

SERIAL NUMBER: 10100203

FILING DATE: 03/19/2002

PATENT NUMBER:

ISSUE DATE:

TITLE: METHOD AND APPARATUS FOR PRECISION WAVELENGTH STABILIZATION IN  
FIBER OPTIC COMMUNICATION SYSTEMS USING AN OPTICAL TAPPED DELAY LINE

D:CHRISTOPHER P. HARRIS COMPANY: TAROLLI, SUNDHEIM, COVELL &amp; TUMMINO LLP

025137/0960 PAGE 2

SERIAL NUMBER: 07604255	FILING DATE: 10/29/1990
PATENT NUMBER: 5079555	ISSUE DATE: 01/07/1992
TITLE: SEQUENTIAL IMAGE SYNTHESIZER	
SERIAL NUMBER: 07806697	FILING DATE: 12/12/1991
PATENT NUMBER: 5202776	ISSUE DATE: 04/13/1993
TITLE: TIME DELAY BEAM FORMATION	
SERIAL NUMBER: 08032696	FILING DATE: 03/17/1993
PATENT NUMBER: 5384573	ISSUE DATE: 01/24/1995
TITLE: IMAGE SYNTHESIS USING TIME SEQUENTIAL HOLOGRAPHY	
SERIAL NUMBER: 08387414	FILING DATE: 02/13/1995
PATENT NUMBER: 5623360	ISSUE DATE: 04/22/1997
TITLE: TIME DELAY BEAM FORMATION	
SERIAL NUMBER: 09687029	FILING DATE: 10/13/2000
PATENT NUMBER: 6608721	ISSUE DATE: 08/19/2003
TITLE: OPTICAL TAPPED DELAY LINE	
SERIAL NUMBER: 10012049	FILING DATE: 12/11/2001
PATENT NUMBER: 6735346	ISSUE DATE: 05/11/2004
TITLE: HD FOURIER TRANSFORMS FOR IRREGULARLY SAMPLED DATA	
SERIAL NUMBER: 10051334	FILING DATE: 01/22/2002
PATENT NUMBER: 7062174	ISSUE DATE: 06/13/2006
TITLE: WAVELENGTH DIVISION MULTIPLEXING ADD-DROP MULTIPLEXER USING AN OPTICAL TAPPED DELAY LINE	
SERIAL NUMBER: 09766151	FILING DATE: 01/19/2001
PATENT NUMBER: 7130292	ISSUE DATE: 10/31/2006
TITLE: OPTICAL PROCESSOR ENHANCED RECEIVER ARCHITECTURE (OPERA)	
SERIAL NUMBER: 10199495	FILING DATE: 07/22/2002
PATENT NUMBER: 7509048	ISSUE DATE: 03/24/2009
TITLE: METHOD AND APPARATUS FOR OPTICAL SIGNAL PROCESSING USING AN OPTICAL TAPPED DELAY LINE	
SERIAL NUMBER: 10715824	FILING DATE: 11/19/2003
PATENT NUMBER: 7720226	ISSUE DATE: 05/18/2010
TITLE: PRIVATE AND SECURE OPTICAL COMMUNICATION SYSTEM USING AN OPTICAL TAPPED DELAY LINE	
SERIAL NUMBER: 10051229	FILING DATE: 01/22/2002
PATENT NUMBER: 7756424	ISSUE DATE: 07/13/2010
TITLE: OPTICAL CDMA COMMUNICATIONS SYSTEM USING OTDC DEVICE	
SERIAL NUMBER: 11346566	FILING DATE: 02/03/2006
PATENT NUMBER: 7768709	ISSUE DATE: 08/03/2010
TITLE: LONG TIME APERTURE OPTICAL TAPPED DELAY LINE	

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025137/0960 PAGE 3

MARY BENTON, EXAMINER  
ASSIGNMENT SERVICES BRANCH  
PUBLIC RECORDS DIVISION

D:CHRISTOPHER P. HARRIS COMPANY: TAROLLI, SUNDHEIM, COVELL &amp; TUMMINO LLP

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Form PTO-1595 (Rev. 03-09)  
OMB No. 0651-0027 (exp. 03/31/2009)10/15/2010  
700448267U.S. DEPARTMENT OF COMMERCE  
United States Patent and Trademark OfficeRECORDATION FORM COVER SHEET  
PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

## 1. Name of conveying party(ies)

Northrop Grumman Space &amp; Mission Systems Corp.

Additional name(s) of conveying party(ies) attached?  Yes  No

## 3. Nature of conveyance/Execution Date(s):

Execution Date(s): 12/11/2009

Assignment  Merger

Security Agreement  Change of Name

Joint Research Agreement

Government Interest Assignment

Executive Order 9424, Confirmatory License

Other

## 4. Application or patent number(s):

 This document is being filed together with a new application.

## A. Patent Application No.(s)

SEE ATTACHED

## B. Patent No.(s)

Additional numbers attached?  Yes  No

## 5. Name and address to whom correspondence concerning document should be mailed:

Name: Christopher P. Harris

Internal Address: Taroli, Sundheim, Covell &amp; Tummino LLP

Street Address: 1300 East Ninth Street, Suite 1700

City: Cleveland

State: OH Zip: 44114

Phone Number: 216.621.2234 Ext. 104

Fax Number: 216.621.4072

Email Address: charris@taroli.com

## 6. Total number of applications and patents involved: 1

## 7. Total fee (37 CFR 1.21(h) &amp; 3.41) \$570.00

Authorized to be charged to deposit account

Enclosed

None required (government interest not affecting title)

## 8. Payment Information

Deposit Account Number: 20-0090

Authorized User Name: Christopher P. Harris

## 9. Signature:

/Christopher P. Harris/  
Signature C.A

15 October 2010

Date

Christopher P. Harris  
Name of Person SigningTotal number of pages including cover  
sheet, attachments, and documents: 7Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

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10/19/2010 9:56:38 PM PAGE 6/006 Fax Server

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OCT-15-2010 14:15 FROM 2166214072

TO 15712730140

P.02

Applications:

10100203

Patents:

5079555

5202776

5384573

5623360

6608721

6735346

7062174

7130292

7509048

7720226

7756424

7768709

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Form PTO-1595 (Rev. 03-09)  
OMB No. 0651-0027 (exp. 03/31/2009)U.S. DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office

### RECORDATION FORM COVER SHEET PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

<p><b>1. Name of conveying party(ies)</b> Northrop Grumman Space &amp; Mission Systems Corp.</p> <p>Additional name(s) of conveying party(ies) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><b>3. Nature of conveyance/Execution Date(s):</b> Execution Date(s) 12/11/2009</p> <p><input type="checkbox"/> Assignment      <input checked="" type="checkbox"/> Merger  <input type="checkbox"/> Security Agreement      <input type="checkbox"/> Change of Name  <input type="checkbox"/> Joint Research Agreement  <input type="checkbox"/> Government Interest Assignment  <input type="checkbox"/> Executive Order 9424, Confirmatory License  <input type="checkbox"/> Other _____</p>	<p><b>2. Name and address of receiving party(ies)</b></p> <p>Name: Northrop Grumman Systems Corporation Internal Address: _____</p> <p>Street Address: 1840 Century Park East City: Los Angeles State: California Country: USA Zip: 90067-2199</p> <p>Additional name(s) &amp; address(es) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><b>4. Application or patent number(s):</b> <input type="checkbox"/> This document is being filed together with a new application.</p> <p><b>A. Patent Application No.(s)</b> SEE ATTACHED</p> <p>Additional numbers attached? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><b>5. Name and address to whom correspondence concerning document should be mailed:</b> Name: Christopher P. Harris Internal Address: Tarolli, Sundheim, Covell &amp; Tummino LLP Street Address: 1300 East Ninth Street, Suite 1700 City: Cleveland State: OH Zip: 44114 Phone Number: 216.621.2234 Ext. 104 Fax Number: 216.621.4072 Email Address: charris@tarolli.com</p> <p><b>6. Total number of applications and patents involved:</b> 13</p> <p><b>7. Total fee (37 CFR 1.21(h) &amp; 3.41) \$520.00</b></p> <p><input checked="" type="checkbox"/> Authorized to be charged to deposit account  <input checked="" type="checkbox"/> Enclosed  <input type="checkbox"/> None required (government interest not affecting title)</p> <p><b>8. Payment Information</b></p> <p>Deposit Account Number: 20-0090 Authorized User Name: Christopher P. Harris</p>
<p><b>9. Signature:</b> <i>/Christopher P. Harris/ C.A.</i></p> <p>Christopher P. Harris Name of Person Signing</p> <p>Total number of pages including cover sheet, attachments, and documents: 7</p>	

RECORDATION FORM COVER SHEET  
**PATENTS ONLY**

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**1. Name of conveying party(ies)**

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Execution Date(s) 12/11/2009

Assignment  Merger  
 Security Agreement  Change of Name  
 Joint Research Agreement  
 Government Interest Assignment  
 Executive Order 9424, Confirmatory License  
 Other \_\_\_\_\_

**2. Name and address of receiving party(ies)**

Name: Northrop Grumman Systems Corporation

Internal Address: \_\_\_\_\_

Street Address: 1840 Century Park East

City: Los Angeles

State: California

Country: USA Zip: 90067-2199

Additional name(s) & address(es) attached?  Yes  No

**4. Application or patent number(s):**

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/Christopher P Harris/  
Signature

C.A

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Date

Christopher P. Harris  
Name of Person Signing

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10100203

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5384573

5623360

6608721

6735346

7062174

7130292

7509048

7720226

7756424

7768709

CERTIFICATE OF MERGER

MERGING

NORTHROP GRUMMAN SPACE & MISSION SYSTEMS CORP.

INTO

NORTHROP GRUMMAN SYSTEMS CORPORATION

Pursuant to Section 252(c) of the Delaware General Corporation Law, the undersigned corporation does hereby certify:

FIRST: The name and state of incorporation of each of the constituent corporations in the merger are as follows:

<u>Name</u>	<u>State of Domicile</u>
Northrop Grumman Space & Mission Systems Corp.	Ohio
Northrop Grumman Systems Corporation	Delaware

SECOND: An Agreement and Plan of Merger among the parties to the merger has been approved, adopted, certified, executed and acknowledged by each of the constituent corporations in accordance with the requirements of Section 252(c) of the Delaware General Corporation Law.

THIRD: The name of the surviving corporation is Northrop Grumman Systems Corporation.

FOURTH: The certificate of incorporation of Northrop Grumman Systems Corporation shall be the certificate of incorporation of the surviving corporation.

FIFTH: The executed Agreement and Plan of Merger is on file at the principal place of business of Northrop Grumman Systems Corporation, the address of which is c/o Northrop Grumman Corporation, 1840 Century Park East, Los Angeles, California 90067.

SIXTH: A copy of the Agreement and Plan of Merger will be furnished by the surviving corporation, on request and without cost, to any stockholder of any constituent corporation.

SEVENTH: The authorized capital stock of Northrop Grumman Space & Mission Systems Corp. currently consists of 1,000 shares of common stock, with a par value of \$.001 per share.

EIGHTH: This Certificate of Merger, and the merger referenced herein, shall be effective on December 31, 2009 at 11:59 p.m. (local time in Wilmington, Delaware).

IN WITNESS WHEREOF, the undersigned has caused this Certificate of Merger to be executed by its duly authorized officer this 11<sup>th</sup> day of December, 2009.

NORTHROP GRUMMAN SYSTEMS CORPORATION

By: Kathleen M. Salmas  
Kathleen M. Salmas  
Secretary

# Delaware

PAGE 1

*The First State*

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF OWNERSHIP, WHICH MERGES:

"NORTHROP GRUMMAN SPACE & MISSION SYSTEMS CORP.", AN OHIO CORPORATION,

WITH AND INTO "NORTHROP GRUMMAN SYSTEMS CORPORATION" UNDER THE NAME OF "NORTHROP GRUMMAN SYSTEMS CORPORATION", A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE FOURTEENTH DAY OF DECEMBER, A.D. 2009, AT 7:44 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF OWNERSHIP IS THE THIRTY-FIRST DAY OF DECEMBER, A.D. 2009, AT 11:59 O'CLOCK P.M.

2056806 8100M

100738922



You may verify this certificate online  
at [corp.delaware.gov/authver.shtml](http://corp.delaware.gov/authver.shtml)

*MSB*  
Jeffrey W. Bullock, Secretary of State  
AUTHENTICATION: 8110638

DATE: 07-13-10

CERTIFICATE OF MERGER

MERGING

NORTHROP GRUMMAN SPACE & MISSION SYSTEMS CORP.

INTO

NORTHROP GRUMMAN SYSTEMS CORPORATION

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Northrop Grumman Systems Corporation	Delaware

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NORTHROP GRUMMAN SYSTEMS CORPORATION

By: Kathleen M. Salmas  
Kathleen M. Salmas  
Secretary